

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
9 September 2005 (09.09.2005)

PCT

(10) International Publication Number  
**WO 2005/083406 A1**

(51) International Patent Classification<sup>7</sup>: **G01N 23/223**

(21) International Application Number:  
PCT/IB2005/050535

(22) International Filing Date: 11 February 2005 (11.02.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
04100687.5 20 February 2004 (20.02.2004) EP

(71) Applicant (for DE only): **PHILIPS INTELLECTUAL  
PROPERTY & STANDARDS GMBH** [DE/DE]; Stein-  
damm 94, 20099 Hamburg (DE).

(71) Applicant (for all designated States except DE, US):  
**KONINKLIJKE PHILIPS ELECTRONICS N. V.**  
[NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven  
(NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HARDING, Ge-  
offrey** [GB/DE]; c/o Philips Intellectual Property &

Standards GmbH, Weissshausstr. 2, 52066 Aachen (DE).  
**MARTENS, Gerhard** [DE/DE]; c/o Philips Intellectual  
Property &, Standards GmbH, Weissshausstr. 2, 52066  
Aachen (DE). **BARSCHDORF, Hans** [DE/DE]; c/o  
Philips Intellectual Property &, Standards GmbH, Wei-  
ssshausstr. 2, 52066 Aachen (DE). **SCHWEIZER, Bernd**  
[DE/DE]; c/o Philips Intellectual Property &, Standards  
GmbH, Weissshausstr. 2, 52066 Aachen (DE).

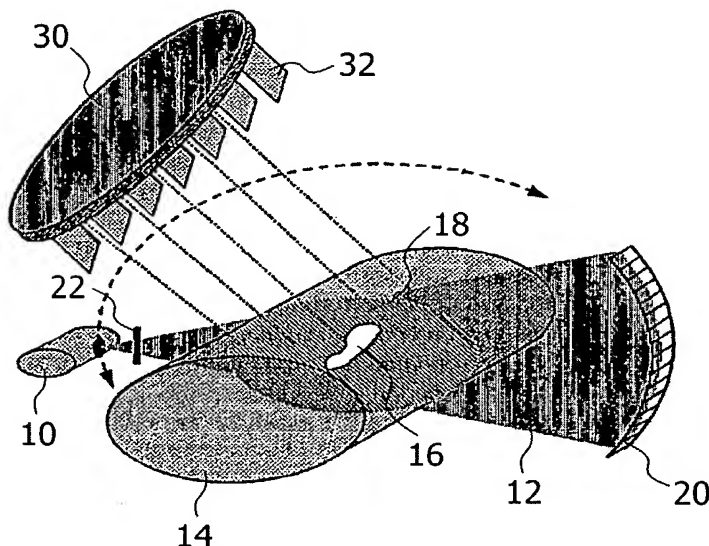
(74) Agents: **VOLMER, Georg** et al.; Philips Intellectual  
Property &, Standards GmbH, Weissshausstr. 2, 52066  
Aachen (DE).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ,  
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,  
ZM, ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

[Continued on next page]

(54) Title: DEVICE AND METHOD FOR MAPPING THE DISTRIBUTION OF AN X-RAY FLUORESCENCE MARKER



(57) Abstract: The invention relates to a method and a device for determining the distribution of an X-ray fluorescence (XRF) marker (16) in a body volume (14). The body volume (14) is irradiated with a beam of rays (12) from an X-ray source (10) with a first ray component with a quantum energy just above and a second ray component with a quantum energy just below the K-edge of the XRF marker (16). Secondary radiation emitted from the body volume (14) is detected in a location-resolved way by a detector (30). To separate the X-ray fluorescence components in the secondary radiation from background radiation, the body volume is irradiated for a second time with a beam of rays from which the first ray component has been substantially removed by a filter (22) made from the material of the XRF marker.



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**Published:**

— *with international search report*